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C O N F I D E N T I A L SECTION 01 OF 02 ASMARA 000322

SIPDIS

DEPARTMENT FOR AF/E AND INR
LONDON AND PARIS FOR AFRICA WATCHERS

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TAGS: [ECON](#) [ENRG](#) [PGOV](#) [PINR](#) [ER](#)
SUBJECT: ERITREA'S FUNCTIONAL YET TEETERING ELECTRICAL
SYSTEM

Classified By: Ambassador Ronald K. McMullen for Reason 1.4 (d)

11. (SBU) Summary: Eritrea's electrical system provided remarkable electricity availability to communities connected to the main grid for several years. Without expensive overhauls of the seven main heavy fuel oil (HFO) fired generators during the next few years, however, Eritrea can expect brownouts and blackouts in 2009 and complete system collapse by 2011. The Eritrean Electric Company (EEC) must also curtail future expansion for the time being, upgrade its operational capacity, and begin charging customers market rates for the system to survive. The World Bank (WB) has engaged the Eritrean Ministry of Energy and Mines (MEM) to fund the necessary upgrades to keep Eritrea's electrical system running. End Summary.

MAIN GENERATOR CAPACITY

12. (SBU) The EEC operates two main electrical generation facilities in Hirgigo and Beleza. The Hirgigo facility is located outside Massawa and runs four MAN B&W 12K60MC-S HFO engines, each rated at 22 megawatts (MW), for a total plant rating of 88 MW. The engines were installed in 1998 and 2000, and supply 80% of Eritrea's on-grid electricity. The Beleza plant, located 10 miles north of Asmara, consists of three 5.7 MW Wartsila Vasa 46 diesel engines commissioned in 1995. These engines are fueled by HFO, operate in parallel to Hirgigo, and are required to restart Hirgigo after a blackout.

13. (SBU) Assab and Tessenai also use the Wartsila Vasa 64 diesel engines. Assab has two, erected in 1993, rated at 2 MW each, and 7 Mirrlees Blackstone engines, erected in 1988, rated at 680 kilowatts (KW) each. Tessenai's total generating capacity is 1.2 MW. All engines are currently running light diesel fuel. Electricity in Assab and Tessenai is limited to only a few hours per day.

OTHER PHYSICAL INFRASTRUCTURE

14. (SBU) The EEC's electrical grid runs from the main generating facilities in Massawa to Asmara, where it branches to cover most of Eritrea's population centers, including the towns of Mendefera, Dekemhare, Keren, and Barentu. The remote on-grid towns of Barentu, Agordat, and Adi Keih each have their own generator, supply from 1-2 MW each. The EEC provides electricity to 33% of Eritrea's population, including the recent WB funded extension of service to 59 villages; 90,000 of Asmara's 450,000 people also have direct access to electricity. The Government of the State of

Eritrea (GSE) plans to eventually expand rural electrification, but this project is on hold while more important systemic issues are addressed.

ALTERNATIVE ENERGY

15. (SBU) Eritrea generates only 1% of its electrical needs (750 KW) from an off-grid wind farm near Assab. The GSE claims it will expand the use of wind power, but no definite plans are known. The MEM is also exploring a potential geothermal field near Alid, 55 miles south of Massawa, which could potentially provide 30 MW (20%) of Eritrea's current electrical needs. The field is presently off-grid and will require extensive additional investment in high-capacity transmission lines before it is useful.

OVERHAUL OR OVERLOAD

16. (SBU) The EEC's main generators are in need of an overhaul to forestall brown/blackouts in 2009 and complete system failure in two or three years. According to the WB, some generating units have exceeded their scheduled overhaul times, and others will soon. If the overhaul is delayed, the units will be damaged, increasing the eventual cost to rehabilitate. An overhaul will also allow the engines to operate at rated capacity; some generators currently run at only 80%-90%.

17. (SBU) Asmara's electricity distribution system is more than 40 years old and in need of an upgrade. The present system creates large voltage fluctuations and loses 18% of

ASMARA 00000322 002 OF 002

transmitted power due to "technical losses." Upgrading the distribution system will reduce technical losses to 7% and result in estimated fuel savings of \$2 million per year at present prices.

THE WORLD BANK TO THE RESCUE

18. (SBU) The WB plans to finance the overhaul of the diesel generators in Hirgigo and Beleza, as well as Asmara's electricity distribution system, through a combination of credits and grants. The project will save Eritrea's electric system from complete collapse by 2011. Without the overhaul, the generators will lose capacity and begin sustaining damage until they become inoperative. The total cost of the project, including funds already allocated, will be \$39 million.

CHALLENGES TO ERITREAN ELECTRIC COMPANY'S OPERATIONS

19. (SBU) The EEC operates as a state-owned entity, providing subsidized power and operating at a loss. Present customer revenues do not cover operations, let alone capital expenditures, due to GSE restrictions on customer rates and recent increases in the price of fuel. Lucrative industrial customers' electrical consumption fell from 60% of the total in 1998 to only 26% in 2006, reflecting Eritrea's deteriorating economy. The EEC is working with the WB to improve its institutional capacity by raising electrical rates to cover necessary institutional improvements, a customer billing and tracking system, a new accounting system, better fuel stock control, and improved metering and billing.

110. (C) Comment: The WB rates Eritrea's electrical system as satisfactory, despite its deficiencies. If the GSE follows through on the WB's institutional capacity program, the EEC will have better customer and supply information available to allow more accurate financial analysis and to adjust operations accordingly. Rather than being merely an operational appendage of the GSE, the EEC can become a stand-alone (although still state-owned) enterprise. It is notable that the EEC is supervised by the MEM, which is known by mining sector investors, like NevSun, as professional,

forward-looking, and non-ideological in comparison to other
GSE ministries. End Comment.
MCMULLEN